PEDIATRIC TUMOR BRAIN 3T

INSTRUCTIONS AND PATIENT PREPARATION

Instructions	No NPO requirements. Free-breathing.
Position	Supine, head first
Coil	32-channel or 16-channel head coil
Landmark	Center at nasion

CONTRAST AGENT PARAMETERS

Contrast Agent	Dose	Injection Rate	Dose Timing Method and Scan Delay
Gadopiclenol (VUEWAY)	0.1 mL/kg (single dose, weight-based)	Hand injection	IV placed prior to start of MRI
Saline Flush	5-10 mL	Hand injection	Following contrast
Comments	Single dose of VUEWAY 0.1 mL/kg based on patient weight; hand inject followed by 5-10 mL saline flush. Report agent administered and dose.		

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MR Gadopiclenol (VUEWAY®) Protocol for Philips MRI Scanners
Pediatric

IMAGING FORUMS, INC.

INFO PAGE

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Total scan duration	00:56.2	05:55.4	01:27.7	05:13.9	03:24.5	02:40.9	03:09.3	05:02.4	03:55.5
Rel. SNR	1	1.73409653	1.7772007	1.92046714	1.34905994	1	0.544027328	0.824332178	1
Act. TR(ms)	—	8257	4176	—	—	4234	8605	—	—
Act. TE(ms)	—	96	93	—	—	12	80	312	—
Act. TR/TE(ms)	11 / 4.6	—	—	8.3 / 3.8	—	—	—	—	3.8 / 1.62
Act. TR/TI(ms)	—	—	—	—	—	—	—	4800 / 1650	—
Act. TR/TE1/delta TE(ms)	—	—	—	—	31 / 7.2 / 6.2	—	—	—	—
ACQ matrix M x P	256 x 128	104 x 103	168 x 165	240 x 222	368 x 298	64 x 60	468 x 297	240 x 240	220 x 193
ACQ voxel MPS (mm)	0.98 / 1.95 / 5.00	2.15 / 2.19 / 2.20	1.31 / 1.33 / 4.00	1.00 / 1.08 / 1.00	0.60 / 0.60 / 2.00	3.75 / 4.00 / 6.00	0.47 / 0.60 / 2.00	1.00 / 1.00 / 1.00	1.00 / 1.00 / 1.00
REC voxel MPS (mm)	0.98 / 0.98 / 5.00	1.40 / 1.40 / 2.20	1.15 / 1.15 / 4.00	0.94 / 0.94 / 1.00	0.34 / 0.34 / 1.00	3.00 / 3.00 / 6.00	0.43 / 0.43 / 2.00	1.00 / 1.00 / 1.00	0.49 / 0.49 / 1.00
Scan percentage (%)	50	98.5714264	98.2142868	92.5	99.6655502	93.75	78.7798386	100	100
Packages	—	1	1	—	—	—	2	—	—
TFE shots	2	—	—	104	—	—	—	—	—
TFE dur. shot / acq (ms)	985.7 / 352.0	—	—	1930.4 / 1843.4	—	—	—	—	637.8 / 615.9
TFE shot interval (ms)	985.697693	—	—	—	—	—	—	—	—
Min. TI delay	221.297897	—	—	960.537781	—	—	—	—	—
Min. slice gap (mm)	—	-0	-0	—	—	—	2	—	—
EPIfactor	—	69	55	—	—	15	—	—	—
Act.slicegap (mm)	—	—	—	0	-1	0	—	0	0
Act. WFS (pix) / BW (Hz)	2.980 / 145.8	—	—	2.269 / 191.5	1.701 / 255.4	—	—	—	0.466 / 931.4
Min. WFS (pix) / Max. BW (Hz)	0.561 / 775.0	—	—	0.525 / 826.7	0.767 / 566.1	—	—	—	0.459 / 947.0
Min. TR/TE(ms)	9.4 / 3.8	—	—	—	—	—	—	—	—
Min. TR/TE1/delta TE(ms)	—	—	—	—	29 / 5.8 / 6.2	—	—	—	—
WFS (pix) / BW (Hz)	—	22.445 / 19.4	22.374 / 19.4	—	—	3.625 / 119.8	1.984 / 218.9	0.459 / 947.0	—
TSE es / shot(ms)	—	—	—	—	—	12.1 / 303	10.0 / 160	3.4 / 593	—
TEeff / TEequiv(ms)	—	—	—	—	—	—	80 / 72	312 / 132	—
Min. TR(ms)	—	—	—	—	—	—	—	—	—
Min. TR/TI(ms)	—	—	—	—	—	—	—	2392 / 50	—
BW in EPI freq. dir. (Hz)	—	1924.3	1247.4	—	—	2625.6	—	—	—
SPIR offset act./default (Hz)	—	220 [220]	220 [220]	—	—	—	—	—	—
Local torso SAR	< 10 %	< 29 %	< 30 %	< 7 %	< 8 %	—	< 100 %	< 15 %	—
Whole body SAR / level	< 0.3 W/kg / normal	< 0.9 W/kg / normal	< 1.0 W/kg / normal	< 0.2 W/kg / normal	< 0.3 W/kg / normal	< 0.3 W/kg / normal	< 3.2 W/kg / 1st level	< 0.5 W/kg / normal	< 0.1 W/kg / normal
SED	0.0 kJ/kg	< 0.3 kJ/kg	< 0.1 kJ/kg	< 0.1 kJ/kg	< 0.1 kJ/kg	0.0 kJ/kg	< 0.6 kJ/kg	< 0.1 kJ/kg	0.0 kJ/kg
Coil Power	10 %	28 %	29 %	7 %	8 %	88 %	96 %	15 %	28 %
Max B1+rms	0.72 uT	1.24 uT	1.25 uT	0.60 uT	0.65 uT	2.20 uT	2.29 uT	0.98 uT	1.24 uT
PNS / level	59 % / normal	64 % / normal	85 % / 1st level	52 % / normal	79 % / normal	62 % / normal	26 % / normal	79 % / normal	100 % / 1st level
dB/dt	45.4 T/s	53.6 T/s	111.7 T/s	51.2 T/s	58.8 T/s	75.3 T/s	16.1 T/s	113.1 T/s	95.6 T/s
Sound Pressure Level (dB)	11.403451	8.06286335	12.7385492	9.17535019	10.8366747	15.4121809	-5.74669218	20.618679	16.0933762
Boil-off (hPa/h)	—	—	—	—	—	—	—	—	—
Max Boil-off (hPa/h)	—	—	—	—	—	—	—	—	—
Boil-off (hPa)	—	—	—	—	—	—	—	—	—

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MR Gadopiclenol (VUEWAY®) Protocol for Philips MRI Scanners
Pediatric

IMAGING FORUMS, INC.

GEOMETRY

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Nucleus	—	—	—	—	—	—	—	—	—
SmartSelect	yes	yes	yes	yes	yes	yes	yes	yes	yes
Coil 1 (exclude)	—	None	None	None	None	None	None	None	None
Uniformity	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
FOV AP (mm)	250	224	220	240	220	240	220	240	220
FOV FH (mm)	250	132	154	240	154	84	150	240	160
FOV RL (mm)	—	224	220	185	178.75	240	177.03125	160	192.5
stack RL (mm)	—	—	—	—	—	—	—	—	—
ACQ voxel size AP (mm)	1.953125	2.19607854	1.29999995	1	0.600000024	3.75	0.469999999	1	1
ACQ voxel size FH (mm)	0.976562977	—	—	1	2	6	—	1	1
ACQ voxel size RL (mm)	—	2.20000005	1.29999995	1	0.600000024	3.75	0.588388979	1	1
Slice thickness (mm)	5	2.20000005	4	—	—	—	2	—	—
Recon voxel size AP (mm)	0.9765625	1.39999998	1.14583337	0.9375	0.34375	3	0.4296875	1	0.491071433
Recon voxel size FH (mm)	0.9765625	—	—	0.9375	1	6	—	1	1
Recon voxel size RL (mm)	—	1.39999998	1.14583337	1	0.34375	3	0.4296875	1	0.491071433
Fold-over suppression	no	no	no	no	no	no	no	no	no
Slice oversampling	—	—	—	default	default	default	—	user defined	default
oversample factor	—	—	—	—	—	—	—	1	—
ENCASE enable	—	—	—	no	no	—	—	—	no
RF select. FOS	—	—	—	—	—	—	—	—	—
Reconstruction matrix	256	160	192	256	640	80	512	240	448
SENSE	no	yes	yes	yes	no	yes	no	no	yes
Preduction (AP)	—	1.5	3	1	—	2	—	—	—
MB SENSE	—	no	no	—	—	—	—	—	—
CS-SENSE	yes	no	no	no	yes	no	yes	yes	no
reduction	2	—	—	—	4	—	2	6	—
denoising	system default	—	—	—	system default	—	system default	system default	—
k-t Acceleration	no	no	no	no	no	no	no	no	no
Stacks	3	1	1	1	1	1	1	1	1
current	—	—	—	—	—	—	—	—	—
type	parallel	parallel	parallel	—	—	—	parallel	—	—
slices	3	60	31	185	154	14	75	160	160
slice gap	user defined	user defined	user defined	—	—	—	user defined	—	—
gap (mm)	10	0	1	—	—	—	0	—	—
slice orientation	sagittal	transverse	transverse	sagittal	transverse	transverse	transverse	sagittal	transverse
fold-over direction	RL	AP	AP	AP	RL	AP	RL	AP	RL
fat shift direction	F	P	P	F	P	P	P	F	P
Minimum number of packages	—	1	1	—	—	—	1	—	—
Multi-chunk	—	—	—	no	no	no	—	no	no
Slice scan order	default	default	default	—	—	—	default	—	—
Stack scan order	ascend	—	—	—	—	—	—	—	—

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Stack sort order	no	—	—	—	—	—	—	—	—
O-MAR	—	—	—	—	—	—	no	no	—
Large table movement	no	no	no	no	no	no	no	no	no
Plan Align	no	no	no	no	no	no	no	no	no
REST slabs	0	0	0	0	0	0	1	0	0
type	—	—	—	—	—	—	parallel	—	—
thickness (mm)	—	—	—	—	—	—	60	—	—
position	—	—	—	—	—	—	feet	—	—
gap	—	—	—	—	—	—	default	—	—
power	—	—	—	—	—	—	1	1	2
Interactive positioning	no	no	no	no	no	no	no	no	no
Allow table movement	—	—	—	—	—	—	—	—	—
Patient position	head first	head first	head first	head first	head first	head first	head first	head first	head first
Patient body position	head first	head first	head first	head first	head first	head first	head first	head first	head first
Patient orientation	supine	supine	supine	supine	supine	supine	supine	supine	supine
Patient body orientation	supine	supine	supine	supine	supine	supine	supine	supine	supine

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Pediatric

IMAGING FORUMS, INC.

CONTRAST

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Scan type	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging
Scan mode	M2D	MS	MS	3D	3D	3D	MS	3D	3D
technique	FFE	SE	SE	FFE	FFE	SE	SE	IR	FFE
Modified SE	—	no	no	—	—	no	no	—	—
3D non-selective	—	—	—	—	—	yes	—	—	—
loop order	—	—	—	—	zy_order	—	—	—	—
Contrast enhancement	T1	—	—	T1	T1	—	—	—	T1
Acquisition mode	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian
Fast Imaging mode	TFE	EPI	EPI	TFE	none	GraSE	TSE	TSE	TFE
3D VIEW	—	—	—	—	—	no	—	Brain FLAIR	—
shot mode	multishot	single-shot	single-shot	multishot	—	multishot	multishot	multishot	single-shot
TFE factor	32	—	—	222	—	—	—	—	164
TSE factor	—	—	—	—	—	25	15	167	—
startup echoes	default	—	—	default	—	0	0	6	user defined
shot interval	shortest	—	—	user defined	—	—	—	—	user defined
(ms)	—	—	—	3000	—	—	—	—	760
profile order	linear	—	—	linear	—	low_high	linear	linear	linear
turbo direction	—	—	—	Y	—	Z	—	Y	Z
DRIVE	—	—	—	—	—	no	yes	no	—
ultrashort	—	—	—	—	—	—	no	—	—
shift	—	—	—	—	—	—	—	—	—
fid reduction	—	—	—	—	—	—	default	default	—
Echoes	1	1	1	1	4	1	1	1	1
partial echo	no	no	no	no	no	no	no	no	no
shifted echo	no	—	—	no	no	—	—	—	no
TE	in-phase	shortest	shortest	shortest	user defined	shortest	user defined	shortest	shortest
(ms)	4.60385227	—	—	—	7.19999981	—	80	—	—
echospacing	—	—	—	—	user defined	—	—	—	—
(ms)	—	—	—	—	6.19999981	—	—	—	—
flyback	—	—	—	—	yes	—	—	—	—
Flip angle (deg)	15	90	90	8	17	90	90	—	10
Refocusing control	—	—	—	—	—	no	constant	constant	—
angle (deg)	—	—	—	—	—	—	120	40	—
bright fat reduction	—	—	—	—	—	—	no	no	—
TR	user defined	shortest	shortest	shortest	user defined	shortest	shortest	user defined	shortest
(ms)	11	—	—	—	31	—	—	4800	—
minimum (ms)	—	—	—	—	—	—	—	—	—
maximum (ms)	—	—	—	—	—	—	—	—	—
Halfscan	no	yes	yes	no	no	no	no	no	yes
factor	—	0.847458005	0.744681001	—	—	—	4	—	—
factor Y	—	—	—	—	—	—	—	—	0.800000012

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factor Z	—	—	—	—	—	—	—	—	0.800000012
Water-fat shift	user defined	minimum	minimum	maximum	user defined	maximum	maximum	maximum	user defined
(pixels)	3.5	—	—	—	1.70000005	—	—	—	0.460000008
IR delay (ms)	—	—	—	—	—	—	—	1650	—
dual	—	—	—	—	—	—	—	no	—
power	—	—	—	—	—	—	—	1	—
RF Shims	fixed	fixed	fixed	fixed	fixed	fixed	fixed	fixed	fixed
Shim	default	auto	auto	auto	auto	auto	default	default	auto
mDIXON	no	no	no	no	no	no	no	no	no
Fat suppression	no	SPIR	SPIR	no	no	SPIR	no	SPIR	SPAIR
strength	—	strong	strong	—	—	medium	—	strong	—
power	—	—	—	—	—	—	—	—	2
inversion delay	—	—	—	—	—	—	—	—	shortest
suppr. level	—	—	—	—	—	—	—	—	—
frequency offset	—	user defined	user defined	—	—	default	—	default	user defined
offset (Hz)	—	220	220	—	—	—	—	—	200
Grad Rev Fat suppr	—	no	yes	—	—	no	no	no	—
Water suppression	no	no	no	no	no	no	no	no	no
TFE prepulse	invert	—	—	invert	—	—	—	—	no
slice selection	no	—	—	no	—	—	—	—	—
delay	user defined	—	—	user defined	—	—	—	—	—
(ms)	800	—	—	1000	—	—	—	—	—
BB pulse	—	no	no	—	—	no	no	no	—
MTC	no	no	no	no	no	no	no	no	no
T2prep	no	—	—	no	—	—	—	yes	no
echo time(ms)	—	—	—	—	—	—	—	125	—
refocusing pulses	—	—	—	—	—	—	—	4	—
APT	—	no	no	—	—	no	no	—	—
Custom prepulse	no	no	no	no	no	no	no	no	no
MDME	no	no	no	no	no	no	no	no	no
Diffusion mode	no	DTI	DWI	no	no	no	no	no	no
sequence	—	—	—	—	—	—	—	—	—
gradient expert mode	—	—	—	—	—	—	—	—	—
gradient overplus	—	no	no	—	—	—	—	—	—
direction	—	—	S	—	—	—	—	—	—
nr of b-factors	—	2	2	—	—	—	—	—	—
b-factor order	—	ascending	ascending	—	—	—	—	—	—
max b-factor	—	800	1000	—	—	—	—	—	—
average high b	—	no	yes	—	—	—	—	—	—
T1 mapping	no	no	no	no	no	no	no	no	no
Transmit channels	both	both	both	both	both	both	both	both	both
SAR mode	high	high	high	high	high	high	high	high	high
B1 mode	default	default	default	default	default	default	default	default	default

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SAR allow first level	yes	yes	yes	yes	yes	no	yes	yes	no
Patient pregnancy	no	no	no	no	no	—	no	no	—
Patient WB SAR [W/kg]	0	0	0	0	0	—	0	0	—
Patient Head SAR [W/kg]	0	0	0	0	0	—	0	0	—
Patient max. dB/dt [T/s]	0	0	0	0	0	—	0	0	—
Max slewrate [T/m/s]	0	0	0	0	0	—	0	0	—
Max. B1+rms [uT]	0	0	0	0	0	—	0	0	—
PNS mode	low	moderate	high	moderate	moderate	moderate	low	high	high
Gradient mode	default	default	maximum	default	maximum	maximum	default	maximum	maximum
SofTone mode	no	no	no	no	no	no	user defined	no	no

MOTION

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Cardiac synchronization	no	no	no	no	no	no	no	no	no
Heart rate > 250 bpm	no	no	no	no	no	no	no	no	no
Respiratory compensation	no	no	no	no	no	no	no	no	no
Navigator respiratory comp	no	no	no	no	no	no	no	no	no
Flow compensation	no	no	no	no	yes	no	no	no	no
Temporal slice spacing	—	default	default	—	—	—	default	—	—
Motion smoothing	no	—	—	no	—	no	no	no	no
fMRI echo stabilisation	no	—	—	no	no	—	—	—	no
NSA	1	1	2	1	1	1	1	2	2
MRE enable	no	no	no	no	no	no	no	no	no

DYNAMIC ANGIO

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Angio / Contrast enh.	no	—	—	no	no	—	—	—	contrast enh.
Quantitative flow	no	—	—	no	no	—	—	—	no
CENTRA	—	—	—	no	—	—	—	no	—
Manual start	no	no	no	no	no	no	yes	no	no
Dynamic study	no	no	no	no	no	individual	no	no	no
Arterial Spin labeling	no	no	no	no	no	pCASL	no	no	no

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IMAGING FORUMS, INC.

POST PROCESSING

Scan Description	Survey	DTI high iso	DWI	SG T1 3D	AX SWIp	pCASL 3D	AX T2 HR POST CONTRAST	SG FLAIR 3D POST CONTRAST	AX T1 FS 3D POST CONTRAST
Preparation phases	auto	auto	auto	auto	auto	auto	auto	auto	auto
Interactive F0	no	no	no	no	no	no	no	no	no
Quick Survey	default	default	default	default	default	default	default	default	default
SmartPlan survey	no	no	no	no	no	no	no	no	no
B0 field map	no	no	no	no	no	no	no	no	no
B1 field map	no	no	no	no	no	no	no	no	no
MIP/MPR	no	no	no	no	no	no	no	no	no
SWIp	no	—	—	no	yes	—	—	—	no
Images	no	no	no	no	no	no	no	no	no
Autoview image	M	M	M	M	—	M	M	M	M
Calculated images	no	no	no	no	—	no	no	—	no
Reference tissue	White matter	White matter	Grey matter	White matter	White matter	Grey matter	Grey matter	Grey matter	White matter
Recon compression	No	High	No	High	High	High	High	High	No
Preset window contrast	soft	soft	soft	soft	soft	soft	soft	soft	soft
Reconstruction mode	immediate	immediate	real time	real time	immediate	immediate	real time	real time	real time
Save raw data	no	no	no	no	no	no	no	no	no
Hardcopy protocol	no	no	no	no	no	no	no	no	no
Image filter	system default	system default	system default	system default	system default	system default	system default	system default	system default
Uniformity correction	no	no	no	no	no	no	no	yes	no
Geometry correction	default	default	default	default	default	default	default	default	default
EPI geometry correction	—	no	no	—	—	—	—	—	—
ADC correction	—	no	no	—	—	—	—	—	—
Elliptical k-space shutter	—	—	—	default	default	default	—	default	default
Free rotatable	no	no	no	no	no	no	no	no	no

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

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